TELECOMMUNICATIONS

Table G.3. Reconstruction of heavily damaged assets

Town	Pre-war Capacity	Reconstruction Completed	Remarks
Khorramshahr	10,000 lines	2,000/600 ch MW	
Abadan	13,000 lines	10,000/1260 ch MW	3,000 lines under construction
Dezful	10,000 lines	10,000	
Susan Guerd	300 lines	2,000	
Bostan	200 lines	100/12 ch carrier	60 ch UHF under installation
Dehloran	1,000 lines	100/12 ch carrier	1000 line/300 ch MW under construction
Mehran	500 lines	100/UHF-24 ch	
Qasr-e-Shirin	1,000 lines	100/12 ch carrier	
Zarpol-e Zahab	400 lines	100/UHF-60 ch	
Gilan Gharb	100 lines	100/MW-drop	
Marivan	500 lines	1,000/MW	
Miandoab	10,000 lines	10,000/MW	
Asadabad	Earth station	Completed	

Note: MW - Microwave radio UHF - Ultra high frequency radio
Ch - Channels

BROADCASTING

Table G.4

Stations	Surface (sq.m.)	Damaged Equipment T	A	D	% DEstruction Bldg.	Equip.	% Reconstruction Bldg.	Equip.	Restart Year
High power medium and short wave stations:									
Martyr Chamran	2,300	4	2	1	60	50	100	100	1987
Beit-al-Moghaddas	3,000	2	2	1	90	100	100	100	1987
Abadan	4,200	2	4	2	100	100	95	60	1992
Qasr-e-Shirin	3,000	2	2	2	100	100	20	10	1993
Gilan-e-Gharb	200	2	2	2	100	100	0	0	-
Kamal Abad antennas	-	-	-	-	0	30	100	100	1990
High power TV and FM stations:									
Khosrow Abad	1,200	10	2	1	60	100	100	20	1992
Bostan	1,200	4	1	1	100	100	10	0	1993
Abadan	1,200	10	2	4	80	100	100	50	1992
Shadegan	3,000	9	1	2	20	10	100	80	1992
Kuh-e-Nooh	1,000	5	4	2	80	100	100	30	1992
Nakhjeer	600	5	5	3	100	100	100	80	1992
Studios:		R	TV	D					
Abadan IRIB	7,000	2	2	1	80	100	95	0	1993
Abadan Oil Co.	500	3	-	-	40	100	100	0	1993

Legend:

T - Transmitter A - Antenna towers D - Diesel generators R - Radio TV - Television

H. EDUCATION

Introduction

The education system of the Islamic Republic of Iran provides free education for its school-age population. The objectives of the Government's policy, strategy and priorities for the educational programme include:

Review and modification of education and training system according to the country's needs and the development programme;

Provision of elementary education and development of education and training at guidance and secondary levels according to the country's needs and development programme.

1. Major problems relating to reconstruction and rehabilitation

In order to bring about economic and social development, the substantive aspect of the reconstruction and rehabilitation process will need to ensure a qualitatively improved education programme as well as the availability of skilled/trained manpower in the war-affected provinces. The present system is characterized by a high attrition rate at all levels of education. This problem is being addressed in the Government's first five-year plan, where one of the key issues of the educational programme is to reduce student repetition and the number of drop-outs at all levels.

There is an urgent demand for trained manpower to reconstruct and develop the war-affected provinces. The situation has been exacerbated by the destruction of manpower training facilities destroyed during the war and by the need to create employment opportunities for those leaving school. The Government has accorded a high priority to the revival of the economic life of the war-affected provinces, but this will require an increase in enrolment at vocational/technical/agricultural institutions so as to reduce the shortage of middle-level technicians and skilled workers in the provinces.

(a) The effects of the conflict

Damage to schools

Before the war there were 44,300 classrooms in the five western provinces. Of these some 9,300 classrooms or (21 per cent) in 2,637 schools are reported to have been gravely damaged or destroyed, requiring reconstruction.

In addition, 362 schools located in 12 provinces outside the immediate war zone suffered considerable damage by missile attacks and aerial bombardments. The mission was informed that the total loss of teaching space in all 2,999 schools is estimated at 1,700 square metres.

Table H.1. Number of damaged schools due to the imposed war in different provinces

Province	Primary	Guidance	Secondary	Service/ Vocational	Technical Training	Teachers Training	Gymnasium	Office	Total
Khuzestan	501	134	77	5	6	3	4	2	732
Bakhtaran	382	106	75	3	1	-	-	1	568
Ilam	95	28	87	4	3	3	4	3	227
Western Azerbayjan	900	59	44	-		-	-	-	1 003
Kurdistan	54	13	30	5	2	2	-	1	107
Lorestan	55	17	15	2	-	-	-	-	89
Eastern Azerbayjan	45	32	12	-	-	-	-	-	89
Tehran	32	14	6	-	-	-	-	-	52
Fars	-	-	2	-	-	-	-	-	2
Markazi	6	1	2	-	-	-	-	-	9
Gilan	1	-	-	-	-	-	-	-	1
Isfahan	9	8	5	1	-	-	-	-	23
Hamadan	33	19	10	5	-	-	-	1	68
Zanjan	10	6	3	1	-	-	-	-	20
Charmahal	1	-	2	1	-	-	-	-	4
Kuhkiloieh	1	1	-	-	-	-	-	-	2
Bosher	3	-	-	-	-	-	-	-	3
Sub-total	2 128	438	370	27	12	8	8	8	2 999

Migration of pupils/students away from the war area

Prior to the war there were 1.25 million pupils/students enrolled in 44,300 classrooms in the five war-affected provinces. The war forced about 450,000 (or 36 per cent) to flee to neighbouring provinces for safety causing thereby a dramatic increase in enrolment in schools in those areas. The lack of sufficient school accommodation necessitated the use of a double-shift system to accommodate the new students.

With the reconstruction of more schools in the war-affected provinces, students displaced by the war are expected to return to their places of origin. However, their willingness to return may be conditioned by the standard and/or quality of education they can expect in the reconstructed schools.

War casualty and migration of teachers

The number of educational personnel, including teaching and administrative staff was about 55,000 prior to the outbreak of hostilities. Although no estimates of casualties have been made available to the mission, it is estimated that a considerable number of staff as well as students became war casualties.

When examined within the national perspective, migration of teachers away from the war-affected provinces continues to pose serious problems. According to the five-year plan, 40,000 new primary schoolteachers are needed each year but the teacher-training centres can provide only 25,000 graduates annually. At the secondary level, the shortage of teachers nationwide is at present estimated at 116,000.

(b) Reconstruction/renovation

The Government accords high priority to (a) the construction of primary schools and (b) the provision of teachers to the war-affected provinces. The team believes that reconstruction work was carried out as planned. It was also informed that some schools had to be repaired or rebuilt more than once during the war because of repeated damage or destruction.

With regard to staff, the team noted that the number of teachers available was commensurate with the number of schools reconstructed and with the number of pupils/students that had returned. In some cases, special incentives have been provided to encourage teachers to return to various locations in the war-affected provinces. Moreover, because of a shortage of teachers in the Khuzestan province, the authorities had provided some 400 extra teachers to help out in three of its cities.

Number of schools completely reconstructed/repaired up to the present

More than 50 per cent of the affected schools have been brought back into service over the past three years. Of the 2,999 damaged or destroyed schools, reconstruction work has been completed on 1,060 schools in the war-affected areas and on 362 schools outside the immediate war zone.

Reconstruction work costing of Rls 21,000 million has been completed on 12 technical and vocational training centres located at Ahwaz, Boushehr, Khorramabad, Bakhtaran, Ilam, Boraijerd, Sagez, Tabriz and Mahabad, Khorramshahr and West Azerbayjan. In addition, another 16 centres located in provinces adjacent to the war zone have now been reopened. The team was informed that during the war years attempts were made to keep many of the Centres open despite repeated air attacks on some buildings. Table H.2 details the actual achievements in each sub-sector, and shows that the work accomplished has been evenly distributed in each sub-sector.

Table H.2. Damaged and reconstructed schools

Sub-sector	Damaged	Reconstructed
Primary	2 124	1 023
Guidance	441	218
Secondary	371	152
Service/vocational	27	15
Technical	12	4
Teacher training	8	3
Gymnasium	8	2
Education offices	8	5
Total	2 999	1 422

The team was informed that various foundations and trusts, working in parallel with the Government, have assisted in the reconstruction efforts. These include Aston Ghods Razavi Foundation, Jahad Sazandergi, Mostazafin Bonyad, Peoples Help, and the Foundation for the Displaced Population. It is estimated that about 20 per cent of the total reconstruction effort was carried out by these and other foundations.

Number of schools where work is in progress

Work is currently in progress on a further 370 schools that are scheduled to be completed within the current annual budget period.

Costs of reconstruction carried out to date

The expenditure to date on rebuilding and repairing educational establishments, including the sums approved for the current fiscal year, are shown in table H.3.

Table H.3. Expenditure to date on rebuilding and repairing educational establishments

No.	Sub-sector	Expenditure to date (1991)	Running cost of completion	Total cost (millions of Rls)
1.	Primary schools	35 000	36 000	71 000
2.	Guidance schools	7 161	11 000	18 161
3.	Secondary schools	11 592	15 000	26 592
4.	Service/vocational schools	12 000	14 000	26 000
5.	Technical schools	20 000	40 000	60 000
6.	Teacher training colleges	12 000	25 000	37 000
7.	Sports halls	800	2 400	3 200
8.	Administration buildings	5 000	3 000	8 000
	Total	103 553	146 400	249 953

Note: Considerable expenditure has been in the form of voluntary assistance and is therefore not recorded by the Ministry of Education. The foreign exchange component of items 1, 2, 3 and 8 is estimated to be about 10 per cent; for items 4, 6 and 7, 20 per cent; and, for item 5, 40 per cent - mostly to cover plant and tools.

Future reconstruction programme

Approximately 1,200 damaged or destroyed schools remain to be rebuilt. Many of these are located in war-devastated cities and towns in the western provinces.

In the war-affected rural areas, particularly villages which were totally destroyed, there might be some merit in delaying rebuilding until there is evidence that a viable community will be re-established, or until an estimate of the school-age population of the district can be determined. For such reasons, the future phases of the school reconstruction programme are unlikely to proceed at the same pace as has been achieved to date.

In the team's view it is estimated that about two thirds of the remaining reconstruction work will be completed during the present five-year development plan. The balance will have to be carried over into the next plan period and possibly absorbed into the general education expansion programme which had been in effect up to the outbreak of hostilities.

(c) Constraints

Constraints in relaunching education services in the war-affected provinces relate mainly to the construction as the most severely affected cities and towns suffer from an acute shortage of building materials.

In some locations, mainly in the Ilam and Bakhtaran provinces, where entire communities have been completely destroyed, restoration of education will have to await the necessary replanning and the reconstruction of basic services and infrastructure. Moreover, adequate housing will need to be available at the same time as schools are being built and reopened if teaching is to resume without delay. The mission was informed that the question of an adequate supply of teachers was not a constraint for the present.

(d) The role of the private sector

Prior to the war, the private sector played little or no role in providing for popular education. However, owing to the pressure on the Government's capacity to restore its educational services, the private sector has been allowed to set up non-profit-making educational establishments with strict adherence to nationally accepted standards. While this sector is not involved in reconstruction, its expansion would help to ease the pressure on the Government's school programme. Indications are that private sector schools will continue to expand. At the present time 7,000 private students are attending primary, guidance and secondary schools, in the larger towns.

2. Expressed needs for international assistance

The Planning and Statistics Division of the Ministry of Education is aware that the activities grouped under the name of "school mapping" are an essential basic tool in every aspect of education planning. The Division has begun to look into the feasibility of setting up such an exercise. The Division requires international assistance specifically in:

The design, scope and testing of an appropriate questionnaire;

Methods of data collection in the field;

Acquisition or design of suitable computer programmes to process the data gathered;

Access and handling techniques for all the departments and organizations which will benefit from the availability of the data.

Additionally, a study fellowship to visit another comparable country where these techniques are being used would be of value.

3. Observations

Policy and strategy

The Iranian Government's stated policy and strategy for the development of the educational programme, calls, inter alia, for review and modification of the education and training system according to the country's needs and development programme. This activity would be suitable for external assistance geared to providing expertise in conducting comprehensive human resources sector analysis work on the basis of which a new education policy and strategy can be formulated.

Teachers

Serious problems could arise in the near future in attracting teachers to return to the remote war-affected provinces, particularly in the light of the present country-wide teacher shortage of about 25,000 teachers each year. This situation could be further exacerbated by the 10,000 teachers or so who through promotion, retirement or other reasons, leave the rural areas each year. The mission noted that, in some of the principal cities in the war-affected areas (Ahwaz, Susan-Guerd, Khorramshahr) the problem of teacher shortage does not appear to be critical at this stage. However, it is very doubtful whether the same conditions prevail in rural schools such as the ones visited by the mission. In the event that living conditions are not attractive, the shortage of teachers in rural schools could become very acute, thus contributing to the deterioration of the quality and standard of education.

Reconstruction standards

As mentioned earlier, current standards of construction, and some aspects of planning, are high and consequently comparatively costly. If the Government so wished, there is no doubt that schools which function equally well, could be built at lower costs than at present incurred.

For example, simplifying structures in some cases, and/or reducing or entirely omitting internal circulation spaces where climatic conditions are favourable, would substantially reduce costs. Part of the savings thus effected could be used to provide larger and more appropriate teaching spaces; the balance being used to build more schools.

In general, standards of construction and finish are high, but spacial standards in teaching areas are considered marginal by international standards.

It has been difficult for the mission to obtain an accurate view of the cost of building schools, as project cost analysis techniques are not practised by the unit within the Education Ministry charged with the responsibility for building and equipping all government schools.

The team also looked into the reconstruction costs for schools. Over the range of school types, primary to secondary, the area unit costs were said to be between Rls 200,000 and 300,000 per square metre (1990 costs). Applying these costs to standard-type designs, suggests the following indicative costs for a typical range of schools (buildings only):

Primary school	-	6 classrooms rural	61 million rials
Primary school	-	10 classrooms urban	330 million rials
Guidance school	-	12 classrooms rural	375 million rials
Guidance school	-	18 classrooms urban	720 million rials
Secondary school	-	12 classrooms	540 million rials

The apparent wide divergence in some cases is due to there being a broad range of designs for the same school type, some being more efficient and compact than others. The cost of furniture is generally estimated at 15 per cent of building costs and equipment from +5 per cent (primary) to +15 per cent (secondary). Technical school building costs are probably 10 per cent above secondary schools, but furniture, equipment, tools and plant will add a further 80-85 per cent to these costs. All figures exclude any site and infrastructure costs, which will be different for each location.

I. CULTURAL HERITAGE

Introduction

Throughout eight years of hostilities, the five border provinces of Khuzistan, Ilam, Bakhtaran, Kurdistan and Western Azerbayjan were active theatres of war, while the provinces of Esfahan, Tehran, Luristan, Fars, Bushehr, Markazi, Zanjan, Hamadan, Gilan and Mazandaran were subjected to repeated air raids and missile attacks.

The afflicted area contained many listed sites, monuments and museums, which suffered severe and, in some cases, irreparable, damage. A list outlining damage to a total of 48 monuments and sites of major significance was given to the mission by the national authorities.

1. Observed war damage to cultural heritage

(a) Direct damage

Owing to the limited time available, field visits were restricted to the Tehran area and to the provinces of Esfahan and Khuzestan. The mission also visited key institutions responsible for the protection of cultural heritage, principal historic monuments and sites affected by the war, including two sites inscribed on the World Heritage list, namely Maidan-e-Imam and Choqa Zanbil.

Shush and its surrounding archaeological sites

Shush, considered to be the most important archaeological site in the Islamic Republic of Iran, was founded in the third millenium B.C. and flourished until the Islamic period. The site extends over 360 hectares, of which approximately 30 have been excavated. Today it comprises four archaeological sites: Tappeh Acropolis, Tappeh Apadana, the central tappeh (mound) and the eastern tappeh, known as the City of the Artisans.

Within the archaeological zone are the imposing nineteenth century castle built by the French archaeological mission 150 years ago to serve as a centre for research, the oldest of its type in the country, as well as the site museum, and the shrine of the Old Testament prophet Daniel.

According to local officials, enemy forces occupied a site 3 kilometres away from Shush, and also bombarded the area frequently during the conflict.

Eight years of war have inevitably disturbed the site, and significant damage to the excavated monuments can be seen. Notably, the walls of Shahr-e-Panzdahu, or Fifteenth City, bearing traces of 15 successive layers of occupation, the latest being Elamite, have been reduced in height from 2 metres virtually to zero in places. Extensive impact damage was also visible to the walls, pavement and stone columns of the palace of Khashayer II.

The archaeological research centre was particularly heavily damaged by rocket attacks, which destroyed extensive parts of the wall and roof structure. Traces of impact and metal fragments of missiles are visible.

In addition to the damage to the main structure of the castle itself, many inscribed and carved stones and column shafts from the archaeological site stored in the castle were shattered.

The Shrine of Daniel

The Shrine of Daniel, dating in its present form from the thirteenth century A.D., was hit by rockets, causing the partial destruction of one wing, and the collapse of the mirror decoration of the iwan. Traces of impact are visible around the entrance, and the noticeable incline of the dome is said to be a result of vibration. Restoration has now been completed, and photographic documentation was available, showing the extent of damage. A master plan exists for the site, prepared by the Ministry of Construction.

Choqa Zanbil

Thirty kilometres from Shush, Choqa Zanbil, dating from the second millenium B.C., is the largest ziggurat in the region, measuring 150 metres by 150, and 50 metres high. It was the temple of the Elamite capital of Shush. The mission observed that a section of the baked brick outer casing of the first and second stages of the monument had fallen, apparently as a result of the shock of a nearby explosion; fragments of metal found nearby support this.

Haft Tappeh

The Elamite site of Haft Tappeh (seven mounds), dating from the second millenium B.C., is situated 10 kilometres to the south of Shush. It contains the earliest known brick vault. The site was disturbed by some trench-digging and the erection of defensive obstacles by military units stationed in the area.

(b) Indirect damage

During the war years, the archaeological sites were closed both to the public and to researchers as they fell within a military security zone. It was also stated that, for the same reason, it was not possible throughout the war period to conserve or maintain the often fragile excavated structures, some of which are in unbaked mud brick. According to the authorities, a number of objects seem to have been illicitly excavated from unprotected sites during that period. The urgent need for greater protection of archaeological sites and site museums was stressed.

(c) Damage to monuments and the historic urban fabric

The types of damage observed have been grouped into three broad categories: first degree (direct hit), second degree (damage caused by

vibration or shock waves) and indirect damage (deterioration of the environment). The latter is in some respects the most serious in the long term.

Esfahan

The damage to cultural heritage in Esfahan was enormous and affected 10 major mosques, 5 religious schools, 3 main bazaars and more than 40 listed historic houses. The mission was informed that more than 1,000 old houses were totally destroyed during the war. A map was handed over to the mission showing bombed sites.

Historic public buildings

In March 1984, the south-eastern prayer hall of the 'Atiq Congregational Mosque, a masterpiece of Iranian architecture, was hit by rockets which destroyed 11 bays of the twelfth century Shabestan and a part of the adjacent 'Araban Bazaar. Fortunately, detailed studies and a photogrammetric survey existed, and it was possible to reconstruct the whole of the destroyed area. Restoration work has now been completed.

The Qajar-period Agha Nur Mosque in the Dardasht quarter and the adjacent bazaar also suffered some direct damage and had been partly rebuilt. At the time of the mission's visit, restoration work to the brick vaults of the bazaar was in progress.

Rockets which fell in the vicinity of the Masjid Sayyid, a Qajar mosque with exceptional tiled "Qatar Bandi" stalactites, caused damage to windows, tile-work and wooden grilles.

Although no direct bomb damage was sustained to Maidan-e-Imam or to the surrounding monuments, the Safavid faience tile decoration of the outer face of the dome of the Imam mosque is uniformly lifting around the crown. This is thought to be due to shock waves caused by a missile which exploded directly overhead.

The monumental task of restoration, which has started, involves stripping the roof and reassembling the tiles on a negative mould.

An indirect result of the war damage has been the suspension of vital conservation work to other monuments, including the consolidation of the upper floor structure and the transfer of floor loads to the bearing walls of 'Ali Qapu Palace.

Hammam-e-Wazir in the Jamaleh quarter was partly destroyed, along with a part of the adjacent bazaar and residential quarter, and is now the subject of an ongoing restoration project.

Historic residential quarters

Ten ruined historic residential quarters were visited in Esfahan. The pattern of destruction was consistent: individual houses or groups of houses were razed to the ground, and the area recuperated for market gardens. The ruined arches and party walls of the destroyed houses are visible all around.

In the immediate vicinity, extensive secondary damage from vibration to the fragile finishings and fittings of adjacent historic buildings was observed.

The historic houses visited in each damaged quarter showed degrees of damage ranging from 5 per cent (broken windows, minor damaged mural paintings, stucco, mirrors or woodwork) to 100 per cent destruction. The mission was able to see examples of both ongoing (Khané-e-Sheikh-al-Islam) and completed restoration projects (restored Qajar mural paintings and coloured glass windows in the Kharazi House).

Dezful and Shushtar

The twin cities of Dezful and Shushtar offer exceptionally intact examples of a form of traditional urban architecture perfectly adapted to a hot and humid climate. Dating in their present form from the twelfth to twentieth centuries, they are almost certainly built on very ancient foundations.

Dezful, which was a central market for the region and was known as the "throat of Khuzestan", was repeatedly attacked during the war by aircraft and missiles. Approximately 15,000 houses and public buildings are said to have been destroyed. The mission observed that irreparable damage had been inflicted on the urban fabric of the historic city centre. Countless fine old houses had been reduced to rubble, while many others had been seriously weakened.

A considerable budget has been allocated by the Ministry of Housing and Urbanism for the reconstruction of housing. The problem of the reintegration of the historic areas is now being dealt with, the priority being to conserve and restore what little remains.

The old town of Shushtar was also bombarded during the conflict, and many historic houses and public buildings were destroyed or damaged.

The mission inspected the Imamzadeh of 'Abd Allah at Shushtar, which was damaged during an air raid. Repair work had already been done to the damaged domes over the entrance, but it was noted that the twin minarets had developed an alarming outward lean. Combined with the evidence of the pronounced inclination of the ground away from the building, the internal fissures and the outward bulging of the retaining wall to the east, this suggested that the surrounding clayey soil is subsiding. The structure is in urgent need of consolidation.

(d) Indirect consequences of the war on historic urban fabric

In the necessity for urgent action to reconstruct damaged cities immediately after the end of hostilities and return them to normal life, large sections of the war-damaged residential quarters of historic city centres have been subjected to uncontrolled reconstruction using modern materials and forms in a way completely incompatible with the organic structure of the traditional urban tissue. Particularly severe examples of the process of deterioration were observed in the listed historic areas of Esfahan, Dezful and Shushtar. This type of cultural loss is arguably more serious and irreparable than direct damage to individual monuments.

(e) Museums

Of the 40 museums scattered throughout the country, 5 in Tehran (Iran Bastan, Golestan, National Arts, and Decorative Arts), the Museums of Shush, Haft Tapeh and Abadan in Khuzistan, the Museum and Fortress of Falak-al-Oflak in Lurestan, were all damaged to varying degrees, and totally destroyed in the case of Abadan. The following were inspected during the mission:

Tehran National Museum

A twentieth-century, stone-faced reinforced concrete frame structure, the National Museum suffered considerable damage from vibrations caused by nearby explosions. Shattered windows and showcases had been repaired, but very severe cracking was still clearly visible throughout the underside of the concrete roof slab and beams, and to the upper walls. Emergency repairs had been carried out to the roof covering, and a structural survey carried out. After the first attacks, the entire collection, consisting of 60,000 objects, was transferred to a basement store, with the exception of those objects too heavy to transport. The mission was shown a number of exhibits which had been damaged, ostensibly as a result of war action.

Golestan Palace Museum

The Golestan Palace and its gardens were built by Nasr Al-Din Shah in a fine Qajar style. Several missiles are said to have fallen within 500 yards of the palace, causing a considerable amount of damage, both to the building and to the museum collections.

Cracks visible in the floors, walls and ceilings confirmed that the structure had been subjected to considerable stress, probably induced by vibration during the bombardment.

A number of windows, including many elaborate coloured-glass and wood panels, had been shattered. During the field visit to Esfahan, it was possible to see a set of five damaged sash-windows from the Golestan being repaired by a traditional master.

Extensive areas of mirror and gesso wall and ceiling decoration in the entrance hall were reported to have collapsed during the war and been replaced three years ago. The difference in colour between old and new work was clearly visible. Further damage was sustained to stucco decoration in the entrance hall.

The alabaster columns of the "Iwan Takht-e-Marmar", and the throne of Agha Muhammad Khan, founder of the Qajar dynasty, were cracked and have since been repaired by a specialist from Shiraz.

Ongoing restoration work could be seen being done to the clock tower, and to the "Salon-e-Badgir", or wind-tower room in the palace. As work had only recently been started, it was possible to appreciate the complexity and extent of the work completed to date in other parts of the palace.

The collections of the museum and library, consisting of some 64,000 objects, were carefully packed and moved underground during the bombardments, thus avoiding significant losses. However, many of the rare carpets, which included a 60-square-metre Tabriz, were cut by falling glass from the ceilings, and some showcases were shattered, breaking many items of china. A laboratory manned by a skilled ceramics restorer had been set up in the palace where restoration work was proceeding at the time of the mission.

Other museums

Similar patterns of damage were observed in other museums visited in Tehran: the National Arts Museum, a fine Qajar pavilion built by Fath 'Ali Shah. A missile landed 100 metres away from the museum, breaking coloured-glass windows and damaging some nineteenth century miniatures; the Glass and Ceramics Museum, designed by Hans Hollein within the former Egyptian Embassy, also sustained damage to its structure from a bomb blast Some rare exhibits have had to be restored.

Archaeological Museum of Shush

Restoration of damage to the museum building from missile attacks had been completed at the time of the field visit. Photographic documentation, however, showed patching work to the walls and roof, and replacement of doors and windows, under way. The museum contains a conservation laboratory, where the restoration of the damage to the collections was in progress.

Site Museum of Haft Tappeh

Rockets were said to have fallen within the archaeological zone on a number of occasions, including the site museum, shattering windows and showcases. Some repairs have already been carried out, but showcases, and the ventilation system need replacement. Fortunately, the museum collection, consisting of objects dating from 1500 B.C. had been removed for safekeeping to the National Museum in Tehran.

2. Reconstruction

The national authorities' stated priorities in the five-year plan for the reconstruction and restoration of war-damaged cultural heritage are as follows:

(a) Revision of plans and objectives;

(b) Establishment of an adapted organization;

(c) Provision of adequate legal and financial means;

(d) Rehabilitation of manpower;

(e) Rehabilitation and modernization of facilities and equipment;

(f) Reconstruction, restoration and rehabilitation of damaged monuments, sites, museums and collections.

The Iranian Cultural Heritage Organization estimated that approximately one tenth of restoration work to war-damaged monuments and sites had been completed to date. In view of the severity of destruction suffered by historic sites and monuments during the war, a new list of priorities for conservation had to be drawn up and a new list of priorities and plans of action prepared.

3. Establishment of an adapted organization

Prior to the outbreak of war, responsibility for the protection of cultural heritage was ensured by 11 organizations under the authority of three different ministries.

During the first years of war, there was no systematic programme or specific annual budget for conservation or restoration.

The Iranian Cultural Heritage Organization was founded by government decree in 1987, with its headquarters in Tehran. It gathers together under one umbrella all disciplines related to cultural heritage, with three main activities in each discipline: research; presentation; and protection.

4. Reconstruction and restoration costs

The following table was extracted from a detailed breakdown provided to the mission by the Iranian Cultural Heritage Organization, of the cost of reconstruction and restoration of direct damage to historic monuments and sites in the affected provinces:

Table I.1. Cost estimate of reconstruction and rehabilitation

Province	Total estimated cost (Million Rls)	Expenditure to date (Million Rls)
A. Khuzestan	12 520	375
B. Ilam	780	120
C. Bakhtaran	382	3 570
D. Kurdestan	760	35
E. W. Azerbayjan	1 400	120
F. Esfahan	15 000	285
G. Tehran	1 750	670
H. Lorestan	420	240
I. Fars	100	10
J. Markazi	400	40
K. Zanjan	300	30
Total	37 000	2 307

Note: The figures quoted in the second column, "Expenditure to date", include neither overheads (administrative and technical staff of the Iranian Cultural Heritage Organization, as well as the organization's own team of skilled craftsmen), for which a further 15 per cent would have to be added, nor private sector losses, nor voluntary efforts, which are evaluated at 2-300 per cent of the cost of restoration.

5. The role of the private sector

The national authorities emphasized the considerable contribution to the work of reconstruction made by volunteers. One example mentioned was the organization of voluntary groups in villages throughout the country in order to ensure the protection of heritage sites. The Cultural Organization was encouraging such groups to participate in presentation and ethnographic research work, and the use of indigenous craftsmen had helped considerably to stimulate local interest and mobilize volunteers.

In Esfahan, the mission encountered three architects teaching at the Pardis University who were also working in a voluntary capacity in the pilot project office for reconstruction of the historic Jamaleh neighbourhood.

The stated aim of the organization is that the private and public sectors will become increasingly responsible for the maintenance and repair of the historic building stock. Various financial and fiscal incentives were planned to this end.

6. Expressed needs for external assistance

Training

The Cultural Organization's highly qualified staff of restorers, curators and technicians were mostly trained in Europe in the 1960s. A new generation needs to be trained to the same level of skill and in the use of new techniques and equipment.

Assistance was requested in terms of training abroad and on-site training in the conservation, restoration and documentation of movable and immovable cultural property, as well as in the various branches of museology. A need was expressed for cultural and intellectual exchanges with similar institutions abroad, as well as access to specialist publications and reviews.

Equipment

The reconstruction effort had thrown into relief the need to replace outdated equipment with new technology. In particular, photogrammetry had proved an essential tool in the restoration of war damage, and plotting equipment was required to complete the National Laboratory's photogrammetric unit.

The national authorities were facing difficulties in buying equipment and chemicals from abroad owing to exchange rate problems.

Software was required for the inventory of historic monuments.

Technical cooperation

A need was expressed for cultural and intellectual exchanges with similar institutions abroad, as well as access to specialist publications and reviews.

The advice of the international conservation community was sought on methods of stone conservation for the ruins of Persepolis, and of baked brick and adobe structures for Shush and Choqa Zanbil. Assistance was requested for a study of the ancient water mills and irrigation system of Shushtar.

The authorities of the National Research Laboratory wished to modify the draft UNDP project "Assistance for Training of Personnel and Restoration of

Historic Monuments", prepared during the May 1990 inter-agency mission to Iran, to concentrate on strengthening the central laboratory in Tehran.

Assistance was also requested in finding extrabudgetary funding for a project to restore a group of historic Armenian houses in the Jolfa neighbourhood of Esfahan with a view to expanding the facilities of the existing school of restoration.

7. Observations

In visits to three affected provinces and on-site inspection of over 60 destroyed or damaged monuments, the mission was able to appreciate the extent of reconstruction and restoration work which had already been achieved and the intricate and time-consuming nature of the restoration methods called into play.

Important human resources have had to be mobilized to meet the crisis, often relying to an important extent on volunteers.

The fact that the government has been obliged to expend Rls 37,000 million of its reconstruction budget on restoration of direct war-damage to monuments, and that according to estimates much more will need to be spent before these structures can be restored to a semblance of their former condition, illustrates the magnitude of the problem. In some cases, no amount of effort will be able to compensate the loss to the national heritage.

In its discussions the mission was very much impressed by the zeal and competence of the traditional craftsmen working under the supervision of experienced and highly talented experts. In the view of the mission, it will be some years before the necessary restoration work can be completed.

J. HEALTH

Introduction

Organization of health services

Health services in the five war-affected provinces of Bakhtaran, Khuzestan, Ilam, West Azerbayjan and Kurdestan, are delivered through a network of health facilities and health programmes. The most peripheral health facility is the health house (HH) which provides local care for about 1,500 people. Each group of five HHs are supervised and supported by one Rural Health Centre (RHC) which caters for 7,500 people. In each district there is one district health centre that supervises all RHCs. There are also Urban Health Centres (UHC) catering for urban population. This network is supported by provincial health centres, rural, district, provincial and teaching hospitals.

Situation in war-affected provinces at outbreak of war

At the time of the outbreak of the conflict, the five provinces had a population of about 4.9 million and a series of health facilities consisting of 455 HH, 552 rural and urban health centres (HC), 92 hospitals and about 800 physicians. In addition, there was 1 hospital bed for every 630 persons, an HH or HC for each 4,820 population and if hospitals were included, there was a health facility for each 4,400 people. Over and above these health facilities there were many disease-control and health-promotion and health-protection programmes. Those programmes aimed at vaccination of children, maternal and child care, nutrition, health education and control of communicable diseases. Some 40-60 per cent of the population were benefiting from these programmes at the beginning of the conflict. There were 3 medical universities, 60 midwifery training centers, 280 nursing schools and 13 PHC workers (Behvaris) training centres in the war-affected provinces.

In 1980, one third of the rural population and almost 98 per cent of the urban population had access to clean and safe water supplies and were served with excreta disposal facilities.

1. Health infrastructure

Damage sustained

A total of 102 HHs, 84 RHCs, 80 urban health centres and 12 provincial and/or district health centres were destroyed. In addition, 5 quarantine and tuberculosis-control centres were seriously damaged and in the hospitals a total of 2,076 beds was destroyed. In many instances, all equipment installations, tools, machines, medicines and ambulances and other material that constitutes the standard list of supplies and equipment was lost. Some of these facilities were reconstructed several times as damage was repeated, often several times, during the hostilities.

Reconstruction

During 1988-1990, 61 facilities were reconstructed and 117 were planned for 1991; 774 hospital beds were replaced and 458 are planned for 1991. Out of 1,296 vehicles lost or destroyed, only 200 have been replaced. The total cost of reconstruction during the years 1983-1990 was reported by the Ministry of Health to be Rls 50,848 million and Rls 12,000 million for other governmental bodies and institutions. During 1992-1993 the reconstruction of 46 Health Houses, 2 District Health Centres, 600 teaching hospital beds, 847 treatment hospital beds is planned. Total reconstruction cost for health infrastructure for 1991/1993 is estimated at Rls 295,454 million.

War damage to other health facilities in the non-governmental sector, e.g. hospitals run by oil companies, banks, etc., amounted to about Rls 156,943 million. The reconstruction cost of these private facilities is expected to exceed the estimated cost of the damage.

2. Health and medical education institutions

Damages sustained

The effect of the war on health manpower development had many facets. With many trained health workers killed or disabled, training programmes were interrupted and training institutions damaged. Some 200,000 students who were enrolled in various training institutions were negatively affected during the war years. Many joined the armed forces and others were unable to continue their studies. The resultant manpower shortage has been accentuated by the diversion of most available physicians and health workers to deal with war casualties and other war-related health problems.

All training and teaching institutions in the five war-affected provinces were badly damaged, including three medical universities, 37 teaching hospitals, and 17 educational/research centres; in addition, 5 other universities sustained damage to a lesser degree. Reconstruction of these facilities was an ongoing process, even during the war years.

By the end of 1990, the reconstruction of 10 hospitals and 10 training centres had been completed. The reconstruction of additional hospitals and training institutions is planned if international assistance can be secured. However, it is evident that much of the teaching/learning material, research projects documents, reference books and libraries will be difficult, if not impossible, to replace.

Government estimates indicate that up to the end of 1991, a multitude of agencies, governmental as well as non-governmental, will have spent a total of $2,770 million, and Rls 5,978,500 million, for reconstruction in the area of health and medical education. For future reconstruction covering the years 1991 and onwards a total of $11,000 million and Rls 10,995 million will be needed. These costs include reconstruction of facilities, replacement of supplies, equipment and installations.

3. Water and sanitation facilities

The Ministry of Health and the Ministry of Education are jointly responsible for the supply and quality of water to all villages with more than 150 families. The total number of water supply and sanitation facilities before the onset of the war in the border provinces, was 3,042. Of this number, 205 units were destroyed but they have since been replaced. The total cost for damage to water and sanitation is estimated at Rls 5,200 million.

The actual cost of reconstruction and rehabilitation work already completed is Rls 7,346 million, which also includes the purchase of water and sanitation supplies and equipment and vehicles. Moreover, it covers the cost of material for environmental and water quality control.

Taking into account the major reconstruction costs mentioned under the preceding subsections, the following table provides an estimate of the total reconstruction costs already incurred and projected expenditure to the end of 1993.

Summary of reconstruction expenditure

(Millions of rials)

Name of unit affected	1980-1988	1988-1989	1990-1992	Required before completion: foreign currency	Required before completion: local currency	Total
Ministry of Health and Medical Education	4,000	7,746	36,000	58,781	64,156	170,683
Administrative buildings under construction (housing sector)	--	1,100	2,000	2,360	3,540	9,000
Other health sub-sectors	2,000	4,000	6,000	66,843	100,265	179,108
TOTAL	6,000	12,846	44,000	127,984	167,961	358,791

The total area of damaged buildings is estimated at 1,700,000 m^2.

4. Effects of the war on the health of the people (the disabled)

In addition to the deterioration of health services that occurred as a result of the conflict, the most distressing problems relate to the psycho-social effects and disabilities. In the opinion of the mission, the Government of Iran is adequately addressing these issues in order to reduce the impact of complications.

The mission was informed that almost 600,000 people were physically and mentally disabled during the war. There are no overall cost figures available relating to the treatment of the disabled since it is national policy to provide humanitarian services without consideration of the actual cost involved.

5. Overall health situation since 1988

Because of efficiently run health programmes, the country in general achieved higher coverage rates by the end of the conflict in 1988, even though the relatively low rates for the five war-affected provinces were included. National health targets, such as immunization programmes, hospital buildings per population, etc. could be accomplished in the war-affected provinces if an accelerated reconstruction and rehabilitation programme is launched. Such a programme will first have to raise the quality of services to pre-war standards and then, through intensified inputs, ensure that the level of service is available throughout the country. In order to meet this challenge, the Government has designed a reconstruction programme with a phased target approach which will require international assistance for its implementation.

The mere reconstruction and rehabilitation of facilities and services will not solve existing problems. The interruption of services, especially in the areas of disease control and care of environment programmes, has adversely affected the general health of the population, morbidity and mortality rates and has led to a noticeable increase in communicable diseases. The impact of war on the environment was especially serious: water and sanitation systems were destroyed; soil has been contaminated by chemicals; salination has increased, pests and insects harmful to health have multiplied, affecting humans as well as food production. All this has led to an increased spread of disease, re-emergence of diseases which were under control prior to the war, malnutrition, and chronic ill-health. As an example, the incidence of acute respiratory diseases and diarrhoea, which are rated as the main causes of death countrywide, have risen sharply. Fortunately, the health programmes established by the Government through the Ministry of Health and the Ministry of Education and non-governmental organization-sponsored programmes have helped to control the spread of diseases.

6. Areas of priorities and international assistance

The Government has made it a priority to have all health services rehabilitated without delay. This should serve as an incentive to physicians and other health professionals, including the private sector, to return to the war-affected provinces. Authorities have allocated appreciable amounts of funds to meet all local costs. In view of the magnitude of needs and the limited funds at its disposal, the Ministry of Health has indicated that it would appreciate international assistance in the following forms:

(a) 2,000 field vehicles for ambulatory visits and follow-up visits;

(b) 500 ambulances for medical hospitals;

(c) 500 ambulances for university hospitals;

(d) 300 prefab health houses;

(e) 300 prefab health centres;

(f) 5 prefab public hospitals with 500 beds each;

(g) Related equipment.

For purposes of its reconstruction programme, in the medium term, the Ministries of Health and Education would like to acquire modern technology in the areas necessary to strengthen its hospital facilities, laboratories and medical universities. Such assistance should be in the form of transfer of technology, the provision of modern teaching equipment, and laboratory reagents and equipment. Training facilities, teaching aids and technical assistance in vocational training for the disabled was also emphasized.

7. Observations

One of the major problems in the reconstruction effort is the acute shortage of health facilities, which if not remedied could serve as a deterrent to would-be returnees to the border areas. Moreover, when reconstruction work intensifies, there will be a greater demand on health services. This demand can be met only by giving the health sector a priority not only in reconstruction and rehabilitation but also in strengthening and expanding its capabilities.

Reconstruction and rehabilitation work performed so far by Iranian authorities is impressive. Their experience should be documented and steps should be taken to consolidate their achievements. Furthermore, in order to ensure that the present efforts continue, supplies and equipment, including essential transport facilities, should be given highest priority.

Reconstruction work could be accelerated if prefabricated buildings could be manufactured locally.

Provision of supplies and equipment should be coupled with training in their maintenance and repair and essential tools and workshops needed for this purpose should be provided.

Although it is relatively easy to observe the physical and immediate effects of war at the present time, considerable research work and studies will be needed to assess the effects of the war in the medium and long term.

Effective coordination and advisory mechanism should ensure that the supplies and equipment provided are suited for the local need and culture. Standardization of such supplies and equipment is essential to facilitate maintenance, repair and replacement in the future.

During the process of reconstruction, some problems may arise in the areas of management, logistics, intersectoral coordination and community involvement. It is essential to strengthen these areas.

The development of an incentive system to encourage professionals, workers and the private sector to work in war-affected areas may be considered.